1. **No.**

   FP01812180

2. **Title**

   Influence of Smoking Solubule Guanylate Cyclase Redox State in the Vascular System

3. **Period**

   2017-2019

4. **Summary**

   This study examined whether cigarette smoking-induced vascular injury is accompanied by the disruption of soluble guanylate cyclase (sGC) redox equilibrium. In thoracic aortas and pulmonary arteries in rats chronically administered cigarette smoke extract (irrespective of with or without nicotine and tar), vasorelaxation through activation of the reduced sGC or the oxidized/heme-free sGC was maintained, whereas vascular endothelium-derived nitric oxide (NO)-mediated relaxation was impaired. In addition, the relaxant responses of gastroepiploic arteries obtained from smokers to a reduced sGC stimulant and an oxidized/heme-free sGC stimulant were not different from those of the arteries obtained from non-smokers. Therefore, it was demonstrated that cigarette smoking produces a reduction in NO bioavailability in the vascular system but does not affect the redox state of the NO acceptor sGC. This research was published in Hypertension Research (2020; 43: 178-185. doi:10.1038/s41440-019-0363-y).